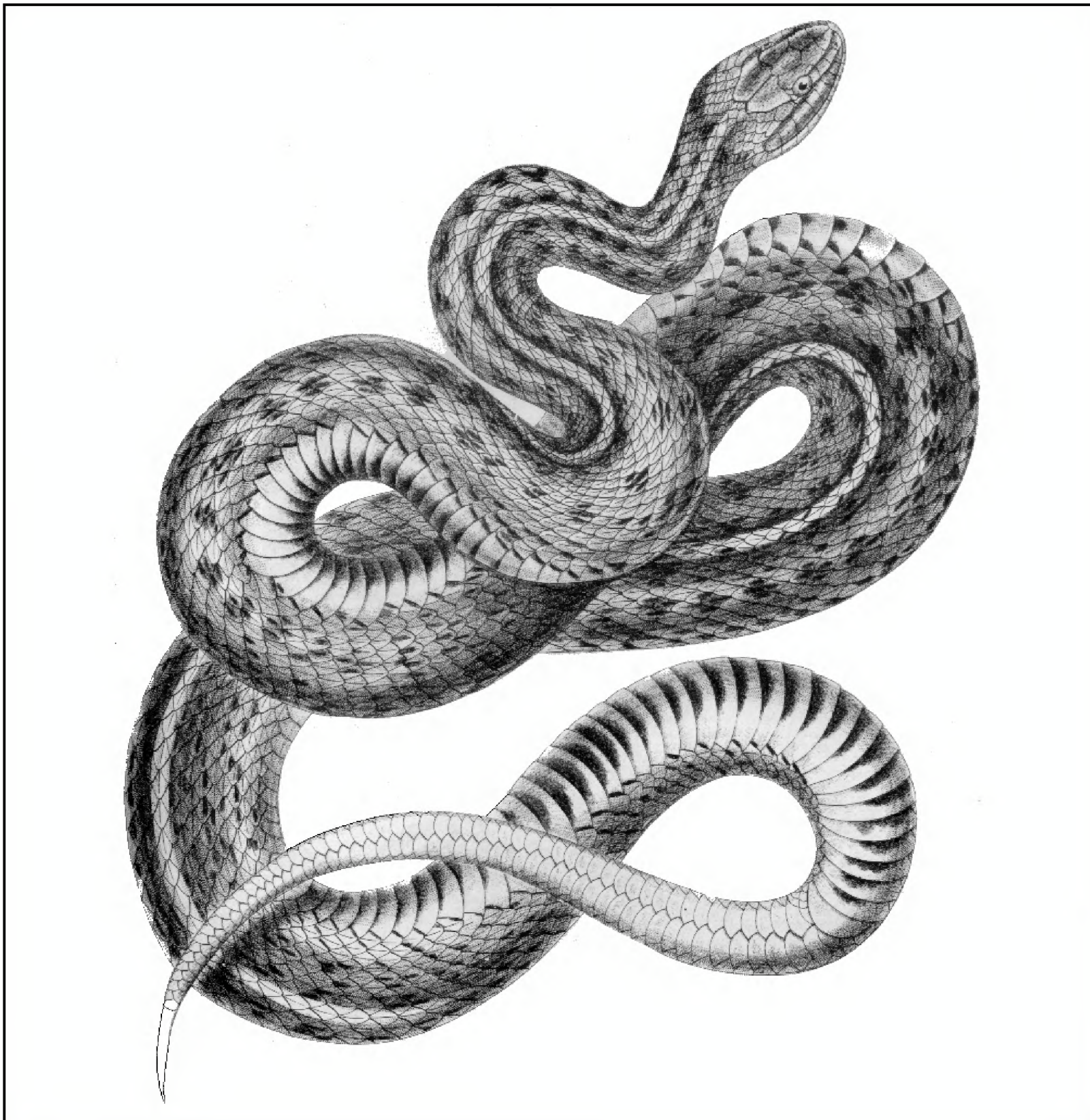

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BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY

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Aggregations of Brownsnakes, *Storeria dekayi* (Holbrook, 1836), at a Site in Northwestern Pennsylvania

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Introduction

Aggregations represent nonrandom use of space, and are often influenced by scarce resources such as prey, shelter, hibernacula, or basking sites (Gregory et al., 1987; Vitt and Caldwell, 2009). Aggregations may occur at different times of the year for various purposes. For instance, during autumn in northern latitudes some snake species aggregate at dens to hibernate; the following spring, these same snakes may aggregate near the den following emergence to mate. In Erie County, Pennsylvania, northern watersnakes (*Nerodia sipedon*) have been observed aggregating in vegetation to bask and possibly to mate (Figure 1). After dispersal from the den, snakes may be found during the active season in aggregations under cover objects. Suggested benefits of aggregating include a reduction in the rate of water loss, provide a short-term advantage with regard to heat loss, may provide an increased chance of mating, and possibly increases the survival of individual young (Noble and Clausen, 1936; Gillingham, 1987; Rossman et al., 1996). Noble and Clausen (1936) studied the aggregation behavior of the brown-snake (*Storeria dekayi*) in the laboratory and reported that vision and olfaction were the senses primarily involved. Reports regarding aggregation behavior of the brownsnake, (*S. dekayi*) in Pennsylvania are scarce (although see Lachner [1942] and Ernst [2003]). In the present study I sought to document aggregation behavior of *S. dekayi* at a site in Millcreek Township, Erie

County, Pennsylvania, in order to augment our knowledge of this species in the commonwealth.

Study site

The study site is within the glaciated Central Lowland Province of northwestern Pennsylvania and consists of approximately 0.5 ha of vegetated slope abutting the western side of the Highway (Hwy) 832 bridge (Figure 2) in Millcreek Township, Erie County. The slope was dominated by crown vetch (*Coronilla varia*), mugwort (*Artemisia vulgaris*), goldenrod (*Solidago* sp.), and late flowering thoroughwort (*Eupatorium serotinum*). Also present along the base of the slope were a few well separated small trees and shrubs (boxelder, *Acer negundo*; red-osier dogwood, *Cornus stolonifera*; honeysuckle, *Lonicera* sp.; and ash, *Fraxinus* sp.). To the west of the slope, the terrain is relatively flat and consist of ca. 3.25 ha of palustrine forest, with eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), and pussy willow (*Salix discolor*) dominating. The site, including the palustrine forest, is bounded to the north and south by residential and industrial development. The bridge creates a formidable barrier to the east. Pre-existing debris at the site included pressed wood panels, boards, shingles, linoleum, and cardboard. The herpetofauna of adjacent property to the west of the site has been reported in Gray (2007; 2009; 2011); a detailed study of the natural history of *S. dekayi* from the site is in preparation (Gray, in press).

Materials and methods

Pre-existing debris objects (n = 16) formed a 68.5 m north-



Figure 1. An aggregation of northern water snakes, *Nerodia sipedon*, basking in common buttonbush, *Cephalanthus occidentalis*. The aggregation consisted of a single adult female and four adult males. Image taken at Asbury Woods, Erie County, Pennsylvania.

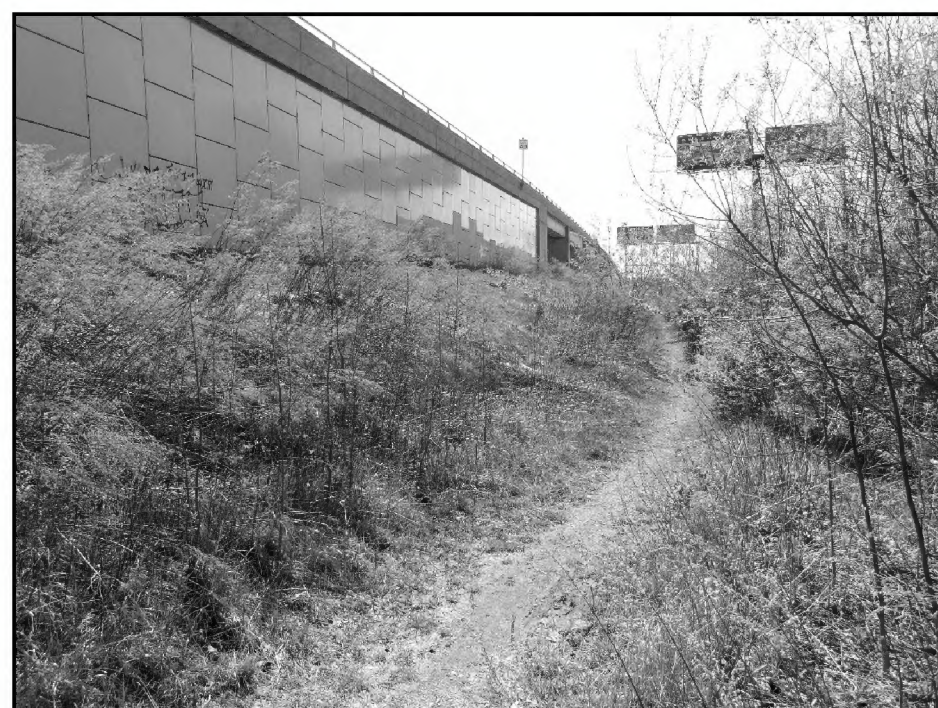


Figure 2. The slope along the Highway 832 bridge in Erie County, Pennsylvania. Brown snakes, *Storeria dekayi*, were found in aggregations beneath debris alongside the bridge on 48 occasions.

south transect along the Hwy 832 bridge; four additional debris objects ran perpendicular to the bridge along the southern edge of a parking lot, forming a 25 m west-east transect.

Snakes were hand captured, sexed, weighed, and their snout-vent length (SVL) and tail length (tl) measured to the nearest millimeter. Surface body temperature of snakes (BT) was taken with a hand-held infrared thermometer (Raytec MT-6) precise to 0.2°C (accuracy of $\pm 1\%$ between 10 and 30°C and $\pm 1.5\%$ outside this range). The thermometer was held approximately 200 mm from the snake and in line with the snake's body axis (Hare et al., 2007). Snakes were individually marked with a portable cautery unit as described by Winne et al. (2006) and released at the site of capture after processing. Adult females were gently palpated to determine if they were gravid; in several instances later captures confirmed determination of gravidity. If a snake was in pre-ecdysis (i.e., opaque cast to its skin) or had recently shed its skin, this information was recorded. I also noted any scale anomalies, such as cleft or fused scales, and whether or not the tail was complete. General descriptions of the pattern of dorsal spots and/or barring were recorded to aid in individual recognition. As per Hulse et al. (2001) males that were at least 175 mm SVL, and females that were at least 225 mm SVL were considered to be adults; those found to be less than the respective values were classified as juveniles. When two or more snakes were found beneath the same cover object, not necessarily in contact, they were considered to be aggregated.

Results

Of a total of 308 *S. dekayi* observed, 39% (n = 120) were individuals in aggregations. Aggregations of *S. dekayi* were observed on 48 occasions and consisted of 2 to 7 snakes. Twenty-eight percent (n = 33) of snakes found in aggregations were either opaque or had recently shed. The most frequently observed aggregations consisted of a single male and female (n = 16); two males (n = 12); and two females (n = 8). Aggregations involving three to seven *S. dekayi* were observed much less frequently (Table 1). The greatest number of aggregations occurred during April (n = 16). Excluding June and July, when no conspecific aggregating behavior was observed, the least number of aggregations occurred in October, with a single aggregation (Figure 3). Aggregations during the spring months (March–May) were adult biased, with the resulting adult (n = 45) to juvenile (n = 21) ratio being 1:0.5. Aggregations during August through October were juvenile biased, with the resulting adult (n = 5) to juvenile (n = 49) ratio being 1:9.8.

Between 18 April and 26 May, gravid female *S. dekayi* were found in aggregations on six occasions. Aggregations were as follows: a gravid female with an adult male (n = 3); two gravid females (n = 1), two gravid females with two adult males (n = 1); a gravid female with one juvenile and four adult males (n = 1).

Body temperature (BT) of *S. dekayi* found in aggregations averaged 18.3°C (sd = 6.64, range: -0.2–25.8, n = 63). The temperature of -0.2°C was observed in two *S. dekayi* on 29 April 2012 and represents the lowest BT reported for the species (Gray, in press). The appendix at the end of this report provides

Table 1. Frequency and composition of aggregations of *Storeria dekayi* observed at the Hwy 832 site in Erie County, Pennsylvania. Due to rounding, the individual percentages do not add to 100.00.

Aggregation type	Frequency	% of total
♂ ♀	16	33.33
♂ ♂	12	25.00
♀ ♀	8	16.67
♂ ♀ ♀	3	6.25
♂ ♂ ♀	2	4.17
♀ ♀ ♀	1	2.08
♂ ♂ ♀ ♀	2	4.17
♂ ♂ ♂ ♀	1	2.08
♀ ♀ ♀ ♀	1	2.08
♂ ♂ ♂ ♂ ♂ ♀ ♀	1	2.08
♂ ♂ ♂ ♂ ♂ ♂ ♀	1	2.08
Total	48	99.99

a summary of each conspecific aggregation of *S. dekayi* that was observed at the Erie County site.

Storeria dekayi were observed in association with *Thamnophis sirtalis* on nineteen occasions. Most interspecific aggregations involved a single *S. dekayi* with a single *T. sirtalis* (n = 7), although on one occasion four *S. dekayi* with one *T. sirtalis* was observed (Table 2). Aggregations of a single *S. dekayi* and a single juvenile *Lampropeltis triangulum* were observed twice.

Discussion

An aggregation of five hibernating *Storeria dekayi* from Mercer County, Pennsylvania was reported by Lachner (1942). Exclusive of hibernating aggregations, Ernst (2003) noted that as many as six *S. dekayi* were found using the same shelter at one of his southeastern Pennsylvania site. At a nearby site, Ernst

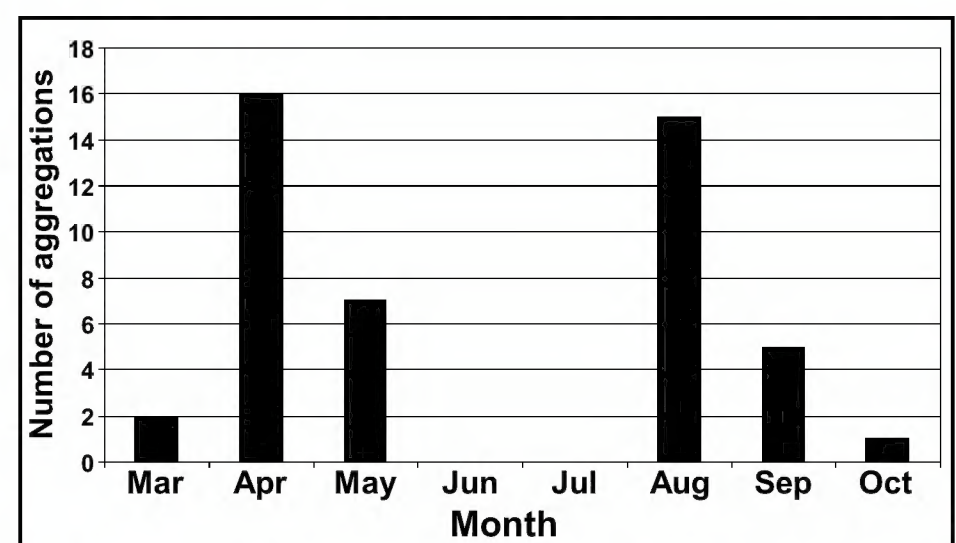


Figure 3. Monthly summary of aggregations of *Storeria dekayi* found at the Hwy 832 site in Erie County, Pennsylvania.

Table 2. Summary of interspecific aggregations of *Storeria dekayi* and *Thamnophis sirtalis* at the Hwy 832 site in Erie County, Pennsylvania.

Composition of aggregation		
# of <i>S. dekayi</i>	# of <i>T. sirtalis</i>	Observed frequency
1	1	7
1	2	5
1	3	1
1	4	1
2	1	4
4	1	1

did not find any *S. dekayi* aggregating. At the same southeastern Pennsylvania sites, spring and fall aggregations at hibernacula ranged from 2-13 snakes (Ernst 2003). Noble and Clausen (1936) reported that over 79% (approximately 397 snakes) of *S. dekayi* that they found were under cover in aggregations of 2–12 snakes. The percentage of aggregating *S. dekayi* at the Erie County site was lower (39%) than that observed by Noble and Clausen, as was the maximum aggregation size of seven snakes. The large number of aggregations found in April is expected, as snakes would be concentrated near hibernacula after emergence. Such concentrations of conspecifics may be beneficial, as the aggregated snakes need not make long journeys to find mates (Gillingham, 1987). One would expect to see increased numbers of aggregations in the fall when snakes are returning to the den, however, this was not the case at the Erie County site. The return of snakes to hibernacula in September and October may be more gradual than the rate of emergence in the spring. The highest number of aggregations observed following the lack of observations in June and July occurred in August and were the result of parturition (Gray, in press). Neonate *S. dekayi* are known to aggregate and prefer to do so with conspecifics (Burghardt, 1983), as such, one would expect juvenile Brown Snakes to be found aggregating with conspecifics more often than with other species, such as *T. sirtalis*. At the Erie County

site juvenile and young-of-the-year *S. dekayi* were more often found with conspecifics. Other factors potentially responsible for the observed differences in frequencies of conspecific and interspecific aggregations include feeding behavior and habitat use. *Storeria dekayi* are reported to feed more often early in the evening or at night (Ernst and Ernst, 2003), and were found under cover in the mornings. Whereas *T. sirtalis* is reported as being more diurnal (Ernst and Ernst, 2003), and was more likely to be found beneath cover in the early evenings (pers. obs.). As was expected, aggregations in the fall were juvenile biased and were similar to the total adult to juvenile ratio (1:3.92) at the site (Gray, in press).

Clausen (1936) noted that gravid female *S. dekayi* were found isolated during June and July. This was true at the Erie County site as well, with no aggregating *S. dekayi* being found during these two months. This is contrary to aggregation behavior by gravid females of the closely related Red-bellied Snake, *S. occipitamaculata* which are found in aggregations during summer (Ernst and Ernst, 2003). Predators often aggregate at sites of high prey availability; however, as prey become less abundant the predators disperse (Gregory et al., 1987). During spring and fall at the Erie County site, slugs were frequently found aggregating beneath cover objects (Figure 4). On one occasion as many as 35 *Deroceras reticulatum* were found beneath a single cover object. This may in part explain the observed abundance of aggregation behavior of *S. dekayi* in spring, as well as the lack of aggregations in summer when prey (i.e., slugs) were scarce. *Storeria dekayi* use the olfactory organs, tongue, and Jacobson's organ to trail prey (Noble and Clausen, 1936). It is possible that snakes could follow scent trails left by slugs and or conspecifics to cover boards, thus encouraging aggregating behavior (Catling and Freedman, 1980).

Storeria dekayi are known to return to the same cover object during ecdysis (Gray, 2008; Gray, in press), and such behavior could potentially promote aggregating behavior. If vision is impaired during ecdysis, individuals aggregating at this time may gain by being in a group. If a predator is attempting to consume a member of the group, the others may escape (Gregory et al., 1987). During March–May and August–October the percentage of *S. dekayi* found opaque or recently shed (33 of 120; 28%)

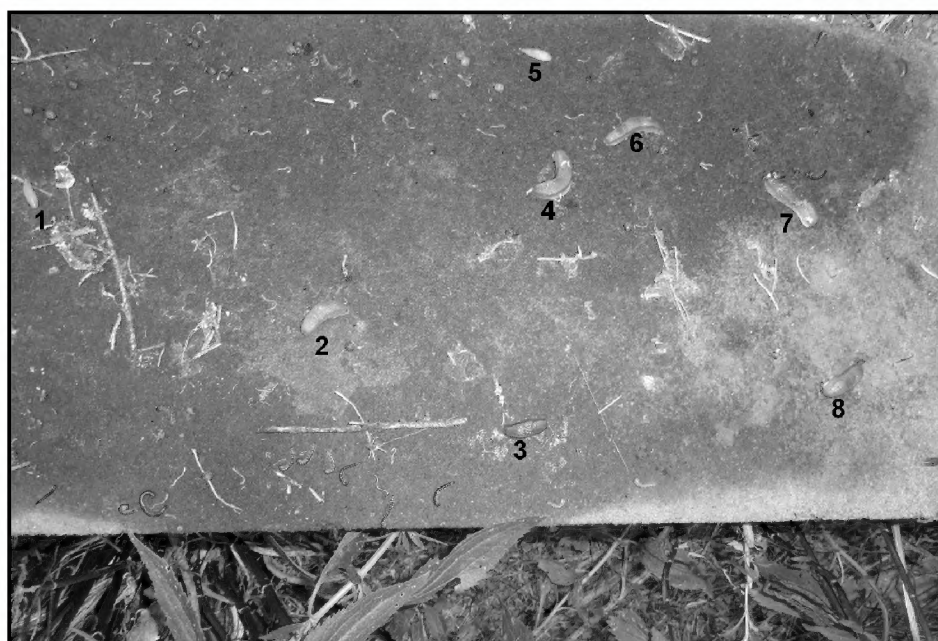


Figure 4. Slugs found on the underside of a cover object at the Hwy 832 site. Slugs 1 and 5 are *Deroceras reticulatum*; the remaining slugs are *Arion* sp. Both genera are preyed upon by *Storeria dekayi* at the site.



Figure 5. Milksnake, *Lampropeltis triangulum*, consuming a juvenile *Storeria dekayi* at the Hwy 832 site in Erie County, Pennsylvania.

was slightly higher than *S. dekayi* found in the same condition but not aggregating (33 of 140; 24%). However, further investigation into *S. dekayi* aggregation behavior during ecdysis is needed to determine whether or not this is coincidental.

While snakes may choose to aggregate at sites that provide thermally optimum conditions, this cannot be determined from the BT data in the present study. More than likely, BTs of aggregating *S. dekayi* at the Erie County site represent temperatures passively experienced by the snakes, and not necessarily temperatures chosen by them. This is especially true of snakes found early in the morning.

During hibernation *S. dekayi* have been reported to aggregate with *N. sipedon*, *Opheodrys vernalis*, *S. occipitamaculata*, *T. butleri*, *T. sauritus* and *T. sirtalis* (Noble and Clausen, 1936; Carpenter, 1953; Wright and Wright, 1957; Pisani, 2009). Pisani and Pittman (2009) observed spring and fall aggregations of *S. dekayi* at or near ant nests that were used as hibernacula in Kansas. Interspecific aggregations during hibernation were not observed at the Erie County site; however, it is possible that *S. dekayi* and *T. sirtalis* could share hibernacula as these two species were found together on nineteen occasions during the active season. Elsewhere in Erie County, Pennsylvania, I have

found *S. dekayi* and *T. brachystoma* under the same cover object. Since juvenile milksnakes are known to prey on *S. dekayi* at the Erie County site (Figure 5), it is not surprising that these two species were found together under the same cover object only twice. Incidentally, *S. dekayi* at the Erie County site were never found under cover objects where Short-tailed Shrews (*Blarina brevicauda*) were recently found. Milk Snakes and shrews are known predators of *S. dekayi* (Ernst and Barbour, 1989; Gray, in press) and it would therefore benefit *S. dekayi* and other small snakes to avoid areas used by these predators.

Storeria dekayi is relatively common in northwestern Pennsylvania (Gray and Lethaby, 2008); however, some traits of its natural history (e.g., aggregation behavior, population size) are not well known from within the commonwealth (Ernst, 2003; Meshaka, 2010). The data regarding aggregation behavior by *S. dekayi* presented here augments our knowledge of this species in Pennsylvania.

Acknowledgments

Thanks to Mark Lethaby for reviewing the manuscript and offering comments and suggestions that improved it.

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Appendix

The following is a complete list of all conspecific aggregations of brownsnakes, *Storeria dekayi*, observed at the Hwy 832 site in Erie County, Pennsylvania. Included is the date the aggregation was observed; the size of the aggregation; the composition of the aggregation. On some dates, more than one aggregation was observed, and these are listed separately. In the adult female column, the number of asterisks indicates the number of adult females in the aggregation that were gravid. For example, on 28 April 2012 four aggregations were observed; the first was an aggregation of four *S. dekayi*, including two adult males and two adult gravid females.

Date	Aggregation Size	Aggregation Composition			
		Adult ♂	Adult ♀	Juvenile ♂	Juvenile ♀
21 March 2012	4			2	2
22 March 2012	2			1	1
16 April 2012	2	1			1
17 April 2012	2	2			
17 April 2012	2				2
18 April 2012	2	2			
18 April 2012	2	1	1*		
21 April 2012	2	1	1*		
21 April 2012	7	4	1*	1	1
21 April 2012	7	3		3	1
26 April 2012	2	2			
26 April 2012	2	2			
28 April 2012	4	2	2**		
28 April 2012	2	2			
28 April 2012	3	1	1	1	
28 April 2012	2	1		1	
29 April 2012	2	2			
30 April 2012	2	1	1		
5 May 2012	2	2			
12 May 2012	2	1	1		
16 May 2012	2	2			
18 May 2012	3	1			2
25 May 2012	2	1	1*		
26 May 2012	2		2**		

Appendix (cont'd)

Date	Aggregation Size	Aggregation Composition			
		Adult ♂	Adult ♀	Juvenile ♂	Juvenile ♀
29 May 2012	2			1	1
8 August 2012	2		2		
14 August 2012	2	1		1	
14 August 2012	2			2	
18 August 2012	3			1	2
18 August 2012	4				4
20 August 2012	2			2	
20 August 2012	2			1	1
20 August 2012	4			3	1
20 August 2012	2				2
24 August 2012	2			1	1
24 August 2012	2			1	1
27 August 2012	2	1			1
28 August 2012	2			1	1
28 August 2012	2			1	1
31 August 2012	2				2
1 September 2012	2				2
1 September 2012	2			1	1
8 September 2012	3			2	1
8 September 2012	2				2
19 September 2012	3			1	2
24 September 2012	2		1		1
29 September 2012	3				3
6 October 2012	2			1	1

Notes on Reproduction of Greater Earless Lizards, *Cophosaurus texanus*
(Squamata: Phrynosomatidae), from New Mexico

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Abstract

The reproductive cycle of *C. texanus* from New Mexico was examined utilizing a histological analysis of museum specimens. Reproductive activity in both sexes occurred from April to August. A new minimum size for sexual maturity (SVL = 48 mm) was reported for *C. texanus* males. Mean clutch size ($n = 13$) was 4.6 ± 1.3 SD, range = 2–7. The smallest reproductively active female (oviductal eggs) measured 48 mm SVL. There was a significant positive correlation between female body size and clutch size. The statement of Fitch (1985) that smaller clutch sizes of *C. texanus* in the western part of its range are associated with lower amounts of precipitation merits subsequent investigation.

The greater earless lizard, *Cophosaurus texanus* Troeschel, 1852, occurs in central and west Texas, New Mexico, Arizona and in northeastern Sonora to western Tamaulipas, Mexico, where they inhabit sandy washes and rocky hillsides (Howland, 2009). In New Mexico it ranges from 900 to about 2100 m (Degenhardt et al., 1996). Detailed works on reproduction of *C. texanus* are by Johnson (1960); Ballinger et al. (1972); Howland (1992); Sugg et al. (1995); Smith et al. (1987); Punzo (2007). Anecdotal information on *C. texanus* reproduction is in Smith (1946); Cagle (1950); Stebbins (1954; 2003); Fitch (1970); Parker (1973); Schrank and Ballinger (1973); Vitt (1977); Behler and King (1979); Brennan and Holycross (2005, 2006). The purpose of this paper is to provide additional information on the reproduction of *C. texanus* as part of an ongoing survey of the reproductive cycles of western North American lizards (see for example, Goldberg, 2010, 2012). New information on the minimum size for *C. texanus* male reproduction is presented.

Methods

A sample of 105 *C. texanus* consisting of 69 adult males, (mean snout–vent length, SVL = $64.7 \text{ mm} \pm 8.4$ SD, range = 47–78 mm), 35 adult females (mean SVL = $58.3 \text{ mm} \pm 4.9$ SD, range = 47–65 mm) and 1 sub-adult female (SVL = 45 mm) from New Mexico (Appendix) was examined from the herpetology collection of the Natural History Museum of Los Angeles

County (LACM), Los Angeles, California, USA. *Cophosaurus texanus* were collected 1945–1973.

A small incision was made in the lower part of the abdomen and the left gonad was removed for histological examination. Enlarged ovarian follicles ($> 4 \text{ mm}$) or oviductal eggs were counted. Gonads were embedded in paraffin, sections were cut at $5 \text{ }\mu\text{m}$, and stained with Harris hematoxylin followed by eosin counterstain (Presnell and Schreiber, 1997). Histology slides were deposited in LACM. An unpaired *t*-test was used to test for differences between male and female SVLs and the relationship between female body size (SVL) and clutch size was examined by linear regression analysis both using InStat 3 (Graphpad, San Diego, CA).

Results

The mean body size (SVL) of my male sample was significantly larger than the mean of my female sample (unpaired *t* test, $t = 4.2$, $df = 102$, $P < 0.0001$). Monthly stages in the testicular cycle are in Table 1. Four stages in the testicular cycle were present: (1) regressed, seminiferous tubules are at their smallest sizes and contain spermatogonia and interspersed Sertoli cells; (2) recrudescence, a proliferation of germ cells for the next period of spermiogenesis is evident, as primary and secondary spermatocytes are present; (3) late recrudescence, occurs just prior to the start of spermiogenesis. Secondary spermatocytes

Table 1. Monthly stages in the testicular cycle of 69 *Cophosaurus texanus* from New Mexico.

Month	<i>n</i>	Regressed	Recrudescence	Late Recrudescence	Spermiogenesis
April	8	0	0	2	6
May	19	0	1	1	17
June	10	0	0	0	10
July	9	0	0	0	9
August	19	17	1	0	1
September	4	3	1	0	0

Table 2. Monthly stages in the ovarian cycle of 35 *Cophosaurus texanus* from New Mexico.

Month	<i>n</i>	Quiescent	Early yolk deposition	Enlarged follicles > 4 mm	Oviductal eggs
April	6	3	3	0	0
May	15	5	3	5	2
June	1	0	0	1	0
July	9	0	1	6*	2**
August	2	2	0	0	0
September	2	2	0	0	0

* 2 clutches were damaged and could not be counted

** 2 clutches were damaged and could not be counted

and spermatids predominate; (4) spermiogenesis, lumina of the seminiferous tubules are lined by sperm or clusters of metamorphosing spermatids. The period of spermiogenesis encompassed March through July, although one of 19 males from August (5%) exhibited spermiogenesis (Table 1). Testicular recrudescence commenced in late summer and was completed the following spring (Table 1). The smallest reproductively active male measured 48 mm SVL (LACM 4240) and was collected in May. This is a new minimum size for *C. texanus* male reproduction. Another male (SVL = 47 mm) from May (LACM 4235) exhibited testicular recrudescence and would likely have commenced spermiogenesis during the current reproductive season.

Four stages were present in the ovarian cycle (Table 2): (1) quiescent, no yolk deposition in progress; (2) early yolk deposition; (3) enlarged ovarian follicles (> 4 mm); (4) oviductal eggs. Females were reproductively active from April into July. Mean clutch size for 13 females was 4.6 ± 1.3 SD, range = 2-7. There was no indication (oviductal eggs and concurrent yolk deposition) in the same female to suggest *C. texanus* produced more than one clutch of eggs in the same reproductive season. A linear regression analysis revealed a significant positive correlation between female body size, SVL and clutch size for 13 *C. texanus* females. This is shown by the regression equation: $Y = -8.30 + 0.2131X$, $r = 0.73$, $P = 0.004$. The smallest reproductively active *C. texanus* female measured 48 mm SVL (oviductal eggs present) and was from July (LACM 95292). One female from May (LACM 133183) that measured 47 mm SVL exhibited quiescent ovaries and may have produced eggs later in the reproductive season. I considered a slightly smaller female (SVL = 45 mm) from May (LACM 4247) as a subadult although, conceivably, it may also have produced eggs late in the reproductive season.

Discussion

Fitch (1985) reported a reduction of *C. texanus* clutch sizes in the relatively dry climate of the western portion of its range. This was exemplified by mean clutches of 5.0 and 6.1 from eastern and central Texas, respectively versus 3.6 from southern Arizona. Other data suggesting *C. texanus* produces smaller clutch sizes in the west is in Ballinger et al. (1972) who reported

a mean clutch size of 6 for *C. texanus* females from West Texas (San Angelo) versus Hulse (1973) who reported a mean clutch size of 2.8 (Fort Apache Indian Reservation) in east central Arizona. Other mean clutch sizes for *C. texanus* are in Smith et al. (1987). The range of *C. texanus* clutch sizes reported herein (2-7) is within that reported by others: (Cagle, 1950; Stebbins, 1954, 2003; Brennan and Holycross, 2005; Howland, 2009). Because clutch sizes of *C. texanus* decrease later in the reproductive season (Howland, 1992; Punzo, 2007), one should consider the monthly distribution of clutches when calculating mean clutch size.

While there are numerous reports of *C. texanus* females producing multiple egg clutches in the same reproductive season (Cagle, 1950; Johnson, 1960; Ballinger et al., 1972; Vitt, 1977; Fitch, 1985; Howland, 1992). My failure to verify this may have resulted from my small sample of *C. texanus* females ($n = 36$).

The minimal size at which *C. texanus* males commence reproduction has been reported as about 50 mm SVL by Ballinger et al. (1972). My data indicate *C. texanus* males commence reproduction at 48 mm SVL in New Mexico.

The duration of the reproductive season of *C. texanus* is variable as in Texas, Ballinger et al. (1972) reported it to extend from early April to mid-August, Johnson, (1960) reported females with oviductal eggs in mid-April whereas Howland (1992) reported reproduction probably began the middle of May. Variations in precipitation influenced timing of the reproductive cycle in females of *Sceloporus occidentalis* from California (Goldberg, 1975a). This phenomenon likely also occurs in *C. texanus*. My data indicate that in New Mexico *C. texanus* reproduction commences in April and terminates in August as it seems likely that some of the July females with enlarged follicles (Table 2) would have deposited eggs in August. However there is an increased probability that late in the reproductive season, vitellogenic follicles will not complete development (see Goldberg 1975b).

In conclusion, the timing of the *C. texanus* reproductive cycle is similar to that of many temperate zone lizards in breeding during spring followed by egg deposition in late spring to early summer and young appearing in summer into early autumn

(Fitch, 1970). Additional investigations are warranted to ascertain the amount of geographic variation in clutch size and to test the statement of Fitch (1985), that smaller *C. texanus* clutch sizes in the western part of its range may be associated with lower amounts of precipitation.

Acknowledgment

I thank G. Pauly (LACM) for permission to examine *C. texanus*.

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Appendix

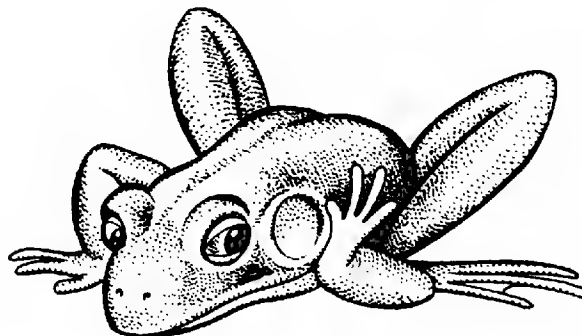
Specimens of *Cophosaurus texanus* from New Mexico (by county) examined from the herpetology collection of the Natural History Museum of Los Angeles County (LACM).

Chavez: LACM 4229; **Doña Ana:** LACM 4214, 4217, 4218, 4216, 4220-4222, 4224, 4226, 4227, 95291-95294, 113398-113401, 113403-113405, 113408, 113415, 123337, 123338, 127510, 133183-133190, 133192-133194, 133197-133201; **Hidalgo:** LACM 62135; **Luna:** LACM 95295, 95297, 95299, 95301, 95303, 95304, 95306, 181881-181891; **Otero:** LACM 23340; **Sierra:** LACM 4230, 4233-4235, 4237-4240, 4242, 4243, 4245-4249, 95307-95309, 95312, 95313; **Socorro:** LACM 23327, 23330, 23331, 23336, 23337, 23339, 23342, 23347, 23351, 23352, 23354, 23356, 23358, 23365, 23373-23375, 23392, 132180, 132184-132186.

Bull. Chicago Herp. Soc. 48(3):42, 2013

The Tympanum

On behalf of the Mabuwaya Foundation and the Gladys Porter Zoo, which coordinates support within the U.S. for its incredible work for the *in situ* conservation of Philippine crocodiles, I would like to thank the Chicago Herpetological Society for its generous donation of \$1,000.00.



crocodile population in San Mariano from 12 non-hatchling individuals in 2000 to at least 54 in 2012 including a minimum count of nine adults. Five nests successfully hatched in the wild in 2012. Crocodiles and their habitat are locally protected in four village and municipal crocodile sanctuaries.

The endemic Philippine crocodile, *Crocodylus mindorensis*, is a critically endangered species with an estimated wild population of less than 250 mature individuals. The only two viable populations are believed to survive in Southwest Mindanao and Northern Luzon. The Philippine crocodile is threatened by a combination of hunting and habitat loss. Although nationally protected, environmental law enforcement is weak and there is little public support for crocodile conservation.

There are only two *in situ* conservation programs for Philippine crocodiles—one on central Mindanao Island, which is very difficult to access because of ongoing civil disturbances and security threats, and one on northern Luzon Island. The issues in Mindanao make the north Luzon program the most important for securing this species in the wild—hence, it is globally significant.

Since 1999, the Mabuwaya Foundation (*Mabuhay* = Long live, *Buwaya* = the crocodile) has been implementing a community-based Philippine crocodile conservation project in the municipality of San Mariano, Isabela Province, Northern Luzon. Here, local communities are now involved in the protection of wetlands and crocodiles. This has led to an increase of the

With this success, a new issue has logically emerged. Human-crocodile conflict is occurring as the result of the expanding crocodile population. Even in areas where the Mabuwaya Foundation has conducted campaigns for over ten years and the communities had developed a high rate of acceptance for the presence of crocodiles, once a pig, chicken or dog is predated by a crocodile, that rate of acceptance drops dramatically. Accordingly, the Foundation is working to reduce threats to and from the expanding population of crocodiles in the recovery areas of Dibuluan, Disulap, San Jose and Cadsalan, as well as the four neighboring villages (called *barangays*) where crocodiles are being reported.

I am sure the funds you have sent will be used for some aspect of their current effort to reduce human/crocodile conflict in the areas where the crocs are making a comeback—all thanks to their tenacious efforts.

Once again, we greatly appreciate your support. Kindly extend our gratitude to all of your contributing members and benefactors. **Colette Adams, General Curator, Gladys Porter Zoo, 500 Ringgold Street, Brownsville TX 78520.**

What You Missed at the February Meeting

John Archer
j-archer@sbcglobal.net

Most of the time I'm easily distracted. Well, I should write that most of the time when I'm reading or studying I'm easily distracted. I have been known to concentrate when I'm into a particular task, but studying almost always finds me chasing tangents that take me far from the target of my initial inquiries. That tendency often frustrates the editor of your *Bulletin* because it usually means that I don't get my article to him as soon as he'd like. The internet has certainly aggravated this failing, and it is a failing. I'd be much smarter if I would learn about one subject before my short attention span led me to another topic of interest, but as I listen once again to the recording of one of our presenters, I'm lured into side trips that have no use to Mr. Dloogatch or you, probably. Where is that town? How much detail can I see of White Sands on Google Earth? I have to read that paper I missed in *Herpetological Review*. What does *Eurycea cirrigera* look like again? And how does one tell a Durango mountain kingsnake from a gray-banded kingsnake?

The majority of which information I'll probably forget within a few weeks or months.

So I'm not like Dusty Rhoads, our February speaker. Dusty wrote a book—a book about trans-Pecos ratsnakes—while he was in college (my college accomplishments: I graduated—barely). Dusty can focus, and that fact has given the world a very complete book about *Bogertophis subocularis* and provided your society an expert speaker on the same. And he's another nice guy. I understand that all of our speakers are vetted so that we only invite the finest, but why do they all have to also be amiable companions? Can I not have one small sop that would boost my ego a little? What's wrong with being able every once in awhile to praise a speaker's presentation and intelligence while secretly allowing me to mull, "Yeah, but he's a jerk"? Never happened. Probably never will.

Certainly not with Dusty Rhoads, who, in spite of a persistent cough, arriving a day late because of Chicago's wonderful winter weather, and barely having time to catch his breath before his flight out the next morning, was gracious, humble, and willing to share pizza and libations after the meeting. Dusty is a native of Texas and graduated from Brigham Young University with a Bachelor of Science in Integrative Biology. He's been a research assistant, curatorial assistant, teaching assistant, and educational presenter at a zoo before heading to the University of Mississippi as a graduate student. He's had to interrupt that, but I'm pretty sure that Dusty will wind up completing graduate work, probably aimed at his favorite species. His presentation was titled "Trans-Pecos Ratsnakes and the Value of Herping and Herpers." He started with photos of



Dusty Rhoads admiring Steve Sullivan's trans-Pecos ratsnake. Photograph by Dick Buchholz.

himself the day his book arrived from the publisher. After five years and much facial hair, he looks a bit more mature, but those photos ably illustrated the amount of zeal that Dusty can bring to endeavors that engage him. He showed a short video of eminent biologist E. O. Wilson talking about the two basic paths that most biologists navigate: either addressing a fundamental problem of biology and finding a particularly apt taxon as a model to solve that problem, or selecting a particular taxon and discovering problems that a study of that taxon may solve. Dusty pointed out that he came to the science the second way—via his enthusiasm for subocs—and emphasized that his interest in that group and his attempt to collect all knowledge on subocs allowed him "intellectual ownership" of subocs and encouraged his pursuit of questions raised by his discoveries.

Dusty classified subocs in the family Colubridae, subfamily Colubrinae, tribe Lampropeltini, and genus *Bogertophis* with recent DNA studies maintaining both *B. subocularis* and *B. rosaliae*, the Baja California ratsnake, as species in *Bogertophis*. With pictures and diagrams Dusty led us through some of the turbulent taxonomic history of these snakes, including all the common names that his research uncovered. My favorite was "a damn Chicken Snake." He highlighted the uniqueness of subocs by pointing out the extra two and four chromosomal numbers that snakes in that genus have as opposed to the 36 diploid chromosomes common to almost all other snakes. Other barriers to hybridization with others in the Lampropeltini tribe reinforce the status of subocs as being very distinct species. Then we saw a series of time maps that demonstrated a possible explanation for the split between *B. subocularis* and *B. rosaliae*. We watched as beginning 15 mya the Baja peninsula split from North America and the local climate changed, isolating two populations that proba-



One of the most attractive snakes on the planet. Photograph by Gerold Merker.



The “not-your-typical-ratsnake-habitat” habitat of subocs. Photograph by Dustin Rhoads.

bly evolved into the two species existing today.

Dusty then explained what makes desert ratsnakes special, beginning with a nice close-up of this attractive snake, which showed the subocular scales, the characteristic that Dusty says gives these snakes more of a face than other snakes. Those subocular scales gave *B. subocularis* its scientific name, but the huge bug-eyes and pseudo-eyeshine contribute to their special status in many peoples’ eyes. The loaf-of-bread cross section is the characteristic that likely resulted in these snakes being labeled ratsnakes. *B. rosaliae* is more diurnal, with a narrower snout and more forward-facing eyes than the predominantly nocturnal *B. subocularis*, which has a record length of 66 inches. We saw a photo of a 65¾-inch specimen that, unfortunately, was found DOR in west Texas. Multiple slides showed us the similarities and differences between the two species.

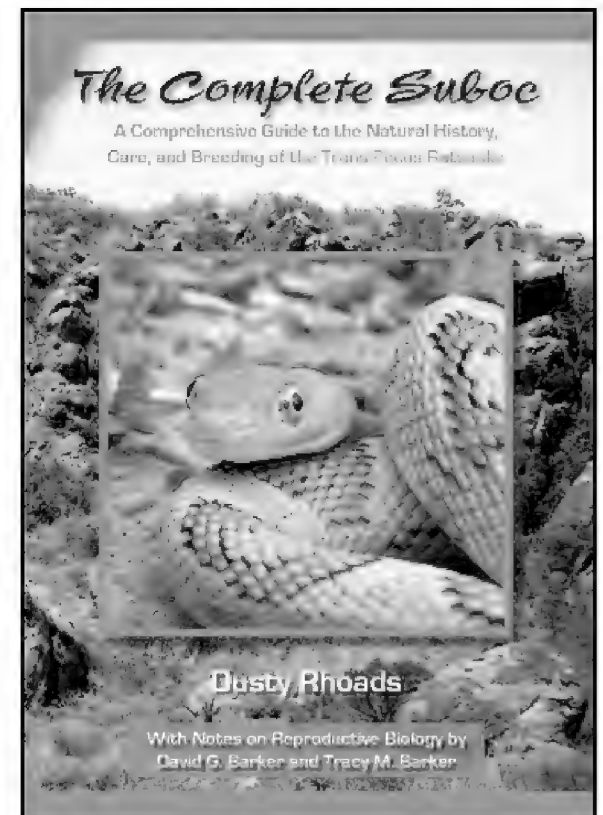
Shots of arid, saxicolous (I really like that word), and vertical habitat highlighted domain that isn’t the haunt of your true ratsnakes. Subocs are found on rocky slopes and hillsides between 1500 and 5000 feet, and, of course, primarily at night. During the day they are fossorial. We saw an interesting shot of the specialist ticks that parasitize these snakes only. Even in the wild these snakes are usually mild mannered. Dusty had shots of a discovery he made of a suboc foraging on bats by hanging through a hole in the middle of a bridge. Interesting to contemplate how the snake learned to hunt in that manner.



It even looks cute with its mouth full. Photograph by Robert “Steve” Cox.

Good husbandry for these animals is an imitation of their habitat in the wild. A microhabitat that is dark and damp and a macrohabitat that is dry and well ventilated can be recreated with a well vented sweater box and a hide box filled with sphagnum moss. A temperature gradient is always needed. Dusty says that the snakes respond well to naturalistic enclosures with rock walls as background and live plants as accents. We saw pictures of his homemade vivarium and a shot of a larger display at the Houston Zoo.

With a slide of his book cover showing, Dusty joked that captive breeding of these animals was way too complicated to cover in his talk and everyone interested should buy his book. If you’re going to breed subocs that’s good advice, but Dusty did give us a brief overview. Several photos demonstrated all too well that males are very aggressive during breeding, even scarring females. Clutch size will range from 3 to 15 eggs and smaller females tend to have elongate eggs while larger ones tend to carry rounder eggs. Dusty gave the audience an idea of what may result from captive breeding with a series of photos of morphs not only from breeders’ efforts but several variations found in the wild. It was just a pleasure to look at the many colorful variations in these attractive animals.



This segued nicely into what Dusty would like to pursue in research. It seems that recessive traits manage to survive and continually manifest in populations of this animal. Dusty would like to pursue the genetic basis for these variations and explore the effect of habitat on these exhibited morphological differences. Satellite maps showed the correlation between color phases and terrain with the label of “Phylogeography—are there multiple populations, and what are they?” This is when he elected to explain the sub title of his presentation. When Dusty sought tissue samples with site data from museums, zoos, and other professional institutions he received eight. When he asked the amateur herpers for shed skins from animals for which they had GPS data, he received about four dozen. Dusty is happy to have the specimens he needs to pursue his research, but the larger point he wanted to emphasize is we amateurs can have a significant impact on the progress of science. Keeping good records and collecting road kills can help a future investigator.

Dusty ended his presentation with plea for more research into species other than *Homo sapiens*, specifically reptiles and amphibians. I’m sure that all of us feel the same, and I’m glad that there are researchers such as Dusty Rhoads with the curiosity, enthusiasm, and drive to contribute, and the willingness to allow us a view of his results.

Herpetology 2013

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SONOYTA MUD TURTLES IN ARIZONA

J. D. Riedle et al. [2012, *Chelonian Conservation and Biology* 11(2):182-189] note that the Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*) is a member of the unique desert riparian fauna isolated along the Rio Sonoyta watershed in northern Sonora, Mexico, and southern Arizona. This subspecies occupies six sites along the Rio Sonoyta, a pool at Quitovac in Sonora, and one pond at Quitobaquito Springs in Organ Pipe Cactus National Monument in Arizona. Since the mid-1980s, population estimates for the US population have ranged from 39 to 153 individuals. In 2006–2007, the human-made Quitobaquito Pond began losing water, and discussions were held concerning the fate of the turtles. During three salvage efforts all Sonoyta mud turtles encountered were captured and transported to temporary holding facilities. Because the minimum number of turtles needed for re-establishment was unknown, a Population Viability Analysis (PVA) was conducted to determine the number of Sonoyta mud turtles that should be held in an assurance colony. Results from both the PVA and previous work suggested that juvenile survivorship has the strongest effect on female transition rates from nonreproductive to reproductive age classes and in turn population growth; thus, a wide range of age classes should be maintained in an assurance colony.

RAPID REPRODUCTIVE ISOLATION IN *UTA*

A. Corl et al. [2012, *Copeia* 2012(4):593-602] note that determining the factors that give rise to reproductive isolation is critical for understanding how species form. Observing reproductive isolation between closely related populations is especially interesting because it can show the factors initially involved in species formation. The authors studied two phenotypically different populations of side-blotched lizards (*Uta stansburiana*), which diverged less than 22,500 years ago according to geologic evidence. The lava flow population has dark dorsal coloration for crypsis and is dimorphic for throat coloration used for signaling male mating type. The off-lava population has light dorsal coloration and is trimorphic for throat coloration. The authors tested whether there was reproductive isolation between these two populations in order to understand the factors that maintain the phenotypic differences between them. Genetic crosses revealed evidence of reproductive incompatibilities because females from the dimorphic lava population produced fewer fertilized eggs and more unfertilized eggs when mated outside their population. In addition, male morphs varied in their reproductive compatibility because females from both populations produced fewer fertilized eggs and fewer clutches with orange-throated males from outside their population. The reproductive incompatibilities observed between the populations suggest that cryptic female choice of sperm may act as a post-mating, prezygotic barrier that contributes to the rapid formation of new species.

PREGNANT RATTLESNAKES CONTINUE TO FEED

G. W. Schuett et al. [2013, *J. Zoology* 289(2):101-110] note that for various reasons, reduction or cessation of feeding (anorexia) can occur in either sex during periods of reproduction among vertebrates, from cichlids to elephant seals. Anorexia is commonly associated with gestation in snakes. Using radiotelemetry, the authors investigated the feeding and spatial ecology of western diamond-backed rattlesnakes (*Crotalus atrox*), a live-bearing viperid species. Specifically, from 2001 to 2010, they determined the feeding frequency and home range size of adult females ($n = 27$) during the active season (March–October) in a population from the Sonoran Desert of Arizona. The central hypothesis addressed was: Do hunting and feeding occur throughout pregnancy? Also tested was a corollary hypothesis: Does pregnancy influence home range size? Hunting and feeding were documented from March to October and during pregnancy (June to mid-September). Feeding frequency was significantly greater in late pregnancy, a result that is in sharp contrast to most other large-bodied vipers. Furthermore, home range sizes in gestating subjects did not differ from those in nonreproductive years. Births occurred from mid-August to mid-September and mean litter size was 3.4. Frequent feeding in *C. atrox* during gestation unquestionably provides energy and nutrients to the mother, which is likely important for survival, but such food consumption does not imply that nutrients are used by the fetuses. There is, however, recent evidence in other snakes, including a pitviper, that amino acids are transferred to fetuses. Feeding during pregnancy in *C. atrox* may be important for both income and capital mode reproduction. Hunting and feeding throughout gestation might be accomplished by having relatively small litters not burdened by a body cavity filled with fetuses. Reduction in litter size may thus be a life-history (fecundity) trade-off that permits females to survive and maintain pregnancy in regions where drought and high temperatures are often extreme and chronic.

DISPERSAL OF HATCHLING WHIPSNAKES

L. Rugiero et al. [2012, *The Herpetological Journal* 22(4):259-261] investigated dispersal patterns of hatchlings from a communal nesting/birth site in central Italy of the western whip-snake, *Hierophis viridiflavus*, using capture-mark-recapture data from a 17-year study. Hatchlings lighter at birth dispersed more than heavier ones, whereas after one year there was no difference in body mass between the individuals that remained close to their birth site and those that dispersed further. The authors interpret this result as an adaptive dispersal behavior in which heavier newborn snakes are less inclined to disperse from the hatching site, whereas lighter snakes move further away to increase their foraging efficiency.

Unofficial Minutes of the CHS Board Meeting, February 15, 2013

The meeting was called to order at 7:38 P.M. at the Schaumburg Public Library. Board members Josh Baity, Lawrence Huddleston and Cindy Rampacek were absent.

Officers' Reports

Recording Secretary: The January 18, 2013, minutes were read and accepted.

Treasurer: The January financial report was presented, discussed, and accepted. We need to start thinking about options for a new treasurer next year, if Andy Malawy retires..

Membership Secretary: Holding steady. Mike read a list of expiring memberships.

Corresponding Secretary: Stephanie has purchased a new phone.

Publications Secretary: Aaron is working on the website.

Sergeant-at-arms: Jim Foster reported that January's meeting attendance was 38.

Committee Reports

Shows:

- Notebaert Nature Museum, first full weekend of each month.
- Kids Expo, Schaumburg Convention Center, March 9–10
- Reptile Rampage, Lake Forest, March 10
- Chicagoland Family Pet Expo, Arlington Park Racecourse, March 15–17, 2013.
- NARBC, Tinley Park, March 16–17

Old Business

Junior Herpers club: JH wanted cards to hand out at events.

Jenny moved to order 2000 cards. Stephanie seconded. After discussion, the quantity was increased to 5000. Motion passed unanimously. Stephanie moved to order JH shirts to be sold to members. The order will be added to the 'Fest shirt order. Jenny seconded. The motion passed unanimously.

New computer/projector/microphone: Teresa Savino had info on several refurbished computers, but after discussion, it was decided to look at new. Aaron LaForge is looking into the projector. Mike Dloogatch moved to purchase a microphone system. Aaron seconded. Motion passed with Linda Malawy abstaining.

New Business

MHS and IHS: The board discussed ways to improve CHS representation at the Midwest Herpetological Symposium in Peoria, 8/30–9/2, and the International Herpetological Symposium in New Orleans, 7/31–8/3.

Attendance at meetings: The board discussed means of increasing attendance at general meetings. To be continued.

Grants: The committee awarded 8 grants totaling \$7000. Mike Dloogatch moved to allocate \$7000 for the 2013 grants. Jim Foster seconded, motion passed unanimously.

Round Table

John took animals to Chicago Animal Care and Control for Bob Bavirsha and met interesting people. Bob was missed.

Dick Buchholz had a snake stolen at the Great Lakes Pet Expo. It was recovered after the event.

The meeting was adjourned at 9:43 P.M.

Respectfully submitted by recording secretary Jenny Vollman



**International Herpetological Symposium
July 31 to August 3, 2013
New Orleans, Louisiana**

The IHS provides a yearly symposium for the dissemination of information and research pertaining to the natural history, conservation biology, captive management, and propagation of amphibians and reptiles. We hope you will join us for this very exciting meeting in New Orleans.

For more information: www.internationalherpetologicalsymposium.com

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, PO Box 430, Newberry, FL 32669-0430, 352-472-9189, E-mail: GrmtRodent@aol.com.

For sale: **highest quality frozen rodents**. I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm), \$25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), \$27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm), \$30/100; Large fuzzy mice /hoppers (10 to 12 days old—8 to 10 gm), \$35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com

For sale: High quality, all locally captive-hatched tortoises, all bred and hatched here in the upper midwest. Baby leopards, Sri Lankan stars, and pancakes usually available, and are all well-started and feeding great! Leopards are \$125 ea., Sri Lankans (2012 hatched) \$475 ea. And Pancakes are \$195 ea. Leopards for out of state sale/shipping require a veterinary health certificate (inquire for cost). E-mail at KKranz1@wi.rr.com or call Jim or Kirsten at 262 654 6303.

Herp tours: **Costa Rica herping adventures**. Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds, and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, this is the place to do it. Go to our web-site <http://hiss-n-things.com> and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

Herpetological Researcher/Educator Internships: Research 4 Reptiles, LLC. is seeking two volunteer interns, ages 18 years and older, for the Summer 2013 season to assist in all aspects of herpetological research and educational classes. Our mission is to provide challenging, hands-on, field-based programs for participants ages 12 years and older to inspire enthusiasm for and understanding of native Illinois reptile and amphibian species. All educational programs are taught entirely outdoors at Midewin National Tallgrass Prairie in Wilmington, Illinois, and are limited to 8 participants. Internship details can be found on our website at: <http://www.research4reptiles.biz>. Email Holly Zak at research4reptiles@comcast.net or call 630-337-0757 for questions.



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News and Announcements

INDIANAPOLIS ZOO TRIP

On Saturday, May 11, 2013, your Chicago Herpetological Society is offering members a behind-the-scenes visit to the Indianapolis Zoo. We will meet at the zoo Saturday morning; no group transportation provided. Fees for parking and admittance apply. Space is limited. The operating hours are 9–5 on Saturday. Go to indyzoo.com for in-depth information regarding the zoo experience. More information will follow; please watch the *Bulletin* and the CHS Facebook page for updates. To reserve space, contact Linda Manchen Malawy at 630-717-9955.

Deserts Biome

The Zoo's overall goal to immerse visitors in the natural habitats of its animals was firmly in mind when designing the Deserts Biome, which opened in 1990. In fact the desert habitat is so authentic, the Zoo is known worldwide for its successful research and breeding of some the rarest desert reptiles. The Indianapolis Zoo was the first zoo in the world to have successfully bred the extremely endangered Grand Cayman blue iguana and the only zoo to successfully breed the rare Jamaican iguana. The attention to detail in the Deserts Biome sets it apart from other desert exhibits across the nation. The 80-foot diameter transparent dome allows the animals to bask in natural sunlight year-round while heating and air conditioning vents hidden in the rocks keep the temperature in the 80s.

Zoo staff spent two weeks in Tucson, Arizona, making rubber molds of actual rocks that decorate the Deserts Biome. The granite gravel lining the floor of the exhibit was trucked in from Arizona, and the giant rocks were painted to match the color of the gravel. The rocks are situated to form a canyon and river and to sculpt a walkway through the dome for visitors. Larger animals are behind glass in the exhibit areas, but the birds and smaller lizards roam freely throughout the dome. If a lizard finds itself in the middle of a turf battle or being pursued by a rambunctious young visitor, it can take cover in one of 75 “hide tubes” throughout the dome. The tubes are made of drainage piping built into the rocks and lined with gravel to provide traction.

About 250 species of plants flourish in the biome, several of which are endangered. Planters constructed inside the rocks give the appearance that the plants grow from within the terrain. All of the plants in the biome are living and cared for daily by the horticulture staff. The temperature in the deserts dome is regulated at 85° in the summer and 82° in the winter. It is lowered to simulate a seasonal change and encourage some of the animals to maintain their hibernation schedule just as they would in the wild. Some animals, like the endangered desert tortoise, need even lower temperatures to hibernate. For the tortoises' winter nap, keepers settle them into a special refrigerator off exhibit to sleep at a chilly 55° until spring. The Deserts Biome is home for another species of tortoise, the radiated tortoise of Madagascar. In late 1995, the zoo was successful in breeding this endangered tortoise, and many more young tortoises have been born since.

Drop Dead Gorgeous Snakes

Opened in June 2000 inside the Deserts Dome, this permanent exhibit presented by AT&T Advertising Solutions features some of the most gorgeous — and deadly — snakes on the planet. In the “Snakes as Art” gallery, the exhibit includes 13 of the most beautiful snakes in the world highlighted with pinpoint fiber optics as they rest in “jewel box” cases. A curving “habitat wall” highlights a second gallery—a collage of spectacular images showing the many different kinds of snakes and the myriad environments in which they can be found. Visitors may sit on a full-size model of the world's largest snake—a 33-foot long version of a reticulated python with a body fully 16 inches in diameter.

The “Snakes and People” gallery is one of the most important parts of the exhibit where the many myths that surround these creatures are exploded. The focus is on how snakes are cared for in the Zoo and on some of the key research and conservation programs in which zoos throughout the world are engaged, as well as many of the snakes that are found right here in Indiana. As humankind comes more and more into contact with snakes, it is more important than ever to understand that the relationships between snakes and people can be mutually respectful, and even entertaining!

See indyzoo.com for more enticement!

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 27, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Gerry Salmon** of Boerne, Texas, will present “Herping the Trans-Pecos: Meyenberg to Sanderson Snakedays.” Gerry Salmon has been an avid naturalist for most of his 52 years. He is a former state park naturalist for New York and South Carolina, an associate of the Department of Herpetology at the Bronx Zoo, and worked at the Miami Serpenterium in the early 1980s. He recently retired from a career with the New York State Police. One of Gerry’s primary interests is the natural history and diversity of snakes and other herps in the American Southwest and Mexico. His talk is based on more than 25 years of experience in the region and its herpetology.

Speaking at the April 24 meeting will be **Dan Krull** of Shawnee, Kansas. Dan is familiar to many of you as a talk show host for Herp Nation Media.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago’s newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

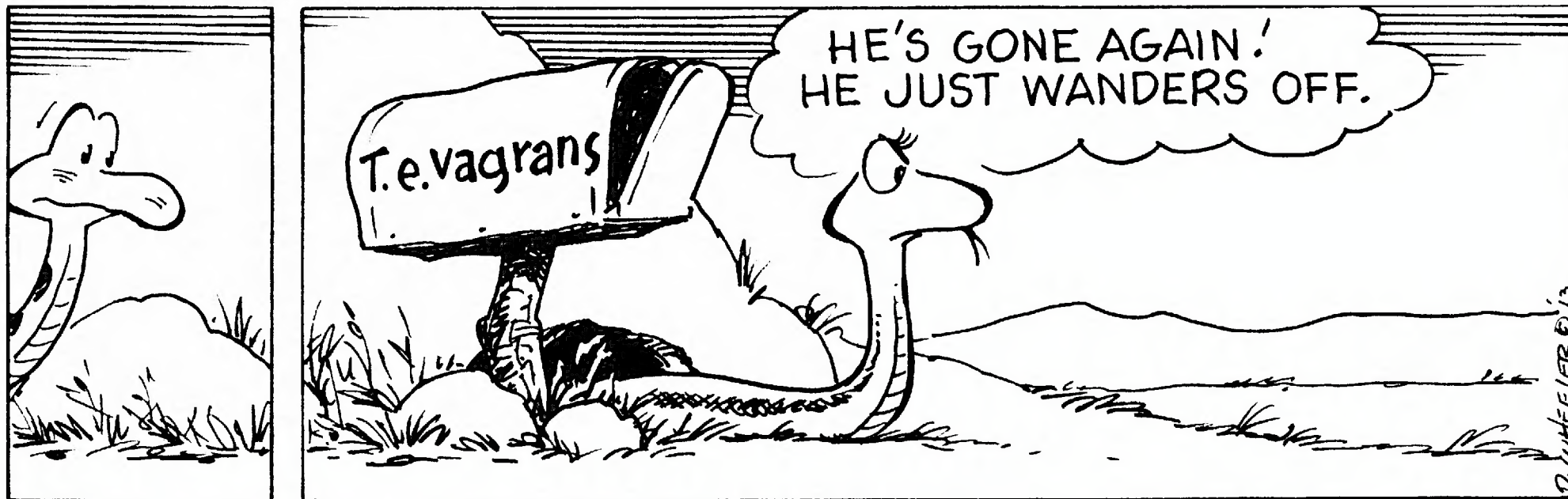
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., May 17 (no April board meeting because of ReptileFest), in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg..

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group’s Facebook page.

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